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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/507,392	04/08/2005	Fumitsugu Fukuyo	46884-5318 (210778)	1798

55694 7590 12/30/2009

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EXAMINER	
ULLAH, ELIAS	
ART UNIT	**PAPER NUMBER**
2892	
MAIL DATE	**DELIVERY MODE**
12/30/2009	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/507,392	FUKUYO ET AL.	
	Examiner	Art Unit	
	ELIAS ULLAH	2892	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *28 September 2009*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *14-19,21-39,41-46,48-52 and 54-62* is/are pending in the application.

4a) Of the above claim(s) *60-62* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *14-19,21-39,41-46 and 48-52 and 54-60* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *08 April 2008* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *9/28/2009, 9/29/2009, 8/21/2009, 12/1/2009*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 9/28/2009 has been entered.

Double Patenting

2. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

3. Claims 14-19 and 23-26 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-38 of U.S. Patent No. US

6,992,026 (Fukuyo et al.) in view of Manor US 2001/0035401. Although the conflicting claims are not identical, they are not patentably distinct from each other because the limitation as recited in the claims of the instant application is recited in the noted claims of the '026.

4. With regard to claims 14-19 and 23-26 Fukuyo teaches a laser processing method comprising the steps of: irradiating an object (claim 1) to be processed comprising a substrate with laser light (claim 1) while positioning a light-converging point (claim 1) at least within the substrate (claim 1), the substrate modified region forming a starting point region (claim 1) for cutting the object inside the object at a predetermined distance from a laser light incident face of the object (claim 1); and cutting the substrate (claim 1) along when a fracture generated in a thickness direction (claim 26) of the substrate from the starting point region reaches a front face and a rear face of the object (claim 26) and in order to provide at least one manufactured semiconductor device and laser light while positioning a light-converging point at least within the substrate under a condition with a peak power density of at least 1 x 10^8 (W/cm2) (claim 2).

However, Fukuyo fails to teach a laminate part on the surface of the substrate.

Manor teaches cutting a substrate 100 (Fig. 3A) with a laminate part 106 disposed on a front face of substrate 100 [0036]. At the time the invention was made; it would have been obvious to a person having ordinary skill in the art to cut a object comprising a laminate part on the surface of the substrate teaching of Manor in the laser

processing of '026 such laminate part e.g. coating on surface of substrate helps to minimize chipping and improve device yield as taught by Manor in [0034].

Claim Rejections - 35 USC § 112

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 57-60 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In claims 57-60, Applicants claimed "neither melting on a laser light incident face of the object nor forming a groove due to melting on the laser light incident face". However, Applicant failed to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Furthermore, it appears that the above claimed limitations direct to a negative limitation and the negative claimed limitation that rendered the claim indefinite because it was an attempt to claim the invention by excluding what the inventors did not invent rather than distinctly and particularly pointing out what they did invent. In re Schechter, 205 F.2d 185, 98 USPQ 144 (CCPA 1953). See MPEP 2173.05(i).

For purpose of examination, Examiner assumes the laser processing method of Hoekstra inherently anticipated above indefinite claimed limitations.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and

> the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

9. Claims 14, 18-19, 21-23, 26-34, 36-27, 39, 41, 45-46, 48, 50-52 and 54-56 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hoekstra (US 6,420,678) in view of Manor (US 2001/0035401).

With regard to claims 14,18-19, 33,41, 45 and 48 Hoekstra teaches a laser processing method comprising the steps of: irradiating an object 4 (Fig.4) to be processed comprising a substrate 4 (Fig. 4, col. 5, lines 45-65) with laser light 34 (Fig. 4) while positioning a light-converging point 35 (Fig. 4, laser light converging through lens 35) at least within the substrate 4 (Fig. 4), the substrate 4 modified region forming a starting point region 37 for cutting the object inside the object at a predetermined distance from a laser light incident face of the object 4 (col. 65+ to col. 6, lines 1+); and cutting the substrate 4 (col. 6, lines 40-50 see also Fig. 4 with respect to Fig. 16) along when a fracture (col. 6, lines 5-15) generated in a thickness direction of the substrate 4

(Fig. 16 with respects to Fig. 4) from the starting point region reaches a front face and a rear face of the object 4 (col. 6, lines 10-15).

Hoekstra expressly fails to teach a laminate part disposed on a front face of substrate and cutting the laminate part and the laminate part having at least one semiconductor device and in order to provide at least one manufactured semiconductor device and the modified regions formed within the substrate and the laminate part overlap with each other along the line when viewed from the thickness direction.

Manor teaches cutting a substrate 100 (Fig. 3A) with a laminate part 106 disposed on a front face of substrate 100 [0036] and the laminate part having at least one semiconductor device ([0007] wherein semiconductor wafer 100 comprises plurality of chips on the wafer 100) and in order to provide at least one manufactured semiconductor device [0007] and the laminate part overlap with each other along the line when viewed from the thickness direction (Fig. 3A, wherein laminate part 106 is overlaps if viewed from thickness direction). At the time the invention was made, it would have been obvious to a person having ordinary skill in the art to cut substrate with laminate on the face of the substrate teaching of Manor in laser processing method of Hoekstra, because such laminate part e.g. coating on surface of substrate helps to minimize chipping and improve device yield as taught by Manor in [0034].

The recitations of "so as to form a substrate modified region due to multiphoton absorption only within the substrate" is only a statement of the inherent properties of the instant process of Nd:YAG laser pulse. The process recited in "laser processing e.g. ND: YAG" is substantially identical (instant application laser process e.g. Nd:YAG laser

see specification page 26) to that of the claims, claimed properties or functions are presumed to be inherent. Or where the claimed and prior art products are identical or substantially identical in structure or composition, or are produced by identical or substantially identical processes, a *prima facie* case of either anticipation or obviousness has been established. *In re Best*, 195 USPQ 430, 433 (CCPA 1977) and MPEP 2112.02.

With regard to claim 21, Hoekstra teaches a laser process method wherein the substrate modified 37 (Fig. 4) region includes at least one of a crack region (col. 6, line 20) which is a region where a crack is generated within the substrate 4 (Fig.4), a molten processed region which is a region subjected to melting within the substrate, and a refractive index change region which is a region with a changed refractive index within the substrate.

With regard to claim 22, Hoekstra teaches a laser process method wherein the laser light irradiating the substrate 4 while positioning the light-converging point 35 therewith in irradiates the substrate 4 from the rear face thereof (col. 6, lines 5-10, wherein laser can be applied on both end).

With regard to claims 23, 39 and 46 Hoekstra teaches a laser processing method comprising the steps of irradiating a substrate 4 (Fig. 4) with laser light 34 while positioning a light converging point 35 within the substrate 4 (Fig.4), so as to from a modified region 37 only within the substrate 4, the modified region 37 forming a starting point (wherein void 37 is formed) region for cutting the substrate 4 at a predetermined distance (Fig. 4) from a laser light 34 incident face of the substrate 4;

and cutting the substrate 4 and along a line 45 (Fig. 4 with respect to Fig. 16) when a fracture generated in thickness direction of the substrate 4 (col. 55-60) from the starting region (wherein void 37 is located) reaches a rear face of the substrate 4 (col. 4, lines 35-47) wherein the substrate modified region formed within substrate 4 (Fig. 4).

Hoekstra expressly fails to teach providing a laminate part on a front face of the substrate after forming the staring point region and cutting the laminate part and fracture reaches front face of the laminate part and the laminate part modified region formed within the laminate part are separate from each and provide at least one manufactured semiconductor device.

Manor teaches cutting a substrate 100 (Fig. 3A) with a laminate part 106 disposed on a front face of substrate 100 [0036] after forming the starting point (see [0036] wherein a laser can be irradiate below coating layer to create starting point) and the laminate part modified region formed within the laminate part are separate from each other ([0036] wherein the laminate part and modified e.g. laser sport on the substrate 100 are separate from laminate part) and provide at least one manufactured semiconductor device [0007]. At the time the invention was made, it would have been obvious to a person having ordinary skill in the art to cut substrate with laminate on the face of the substrate teaching of Manor in laser processing method of Hoekstra, because such laminate part e.g. coating on surface of substrate helps to minimize chipping and improve device yield as taught by Manor in [0034].

With regard to claim 26, Hoekstra teaches a laser processing method comprising the steps of irradiating an object to be processed comprising a substrate 4 (Fig. 4)

which is made of a semiconductor material (col. 4, lines 30-33, wherein substrate made of Si) and laser light 34 while positioning a light-converging point 35 at least within the substrate 4 (Fig.4), so as to form a substrate modified region 37 including a molten processed region (col. 6, lines 1-6) only within the substrate 4 (Fig. 4) the substrate 4 modified molten processed region (col. 4, lines 1-5) forming a starting point region (wherein the void is formed) for cutting the object 4 inside the object 4 at a predetermined distance from a laser light incident face of the object 4 (Fig. 4); and cutting the substrate 4 along a line 45 (Fig. 16 with respect to Fig. 4) when fracture generated in a thickness direction of the substrate 4 (col. 4, lines 35-40) from starting point region (where void 37 is formed) reaches a front face and a rear face of the object (col. 4, lines 40-50).

Hoekstra expressly fails to teach a laminate part disposed on a front face of substrate and cutting the laminate part.

Manor teaches cutting a substrate 100 (Fig. 3A) with a laminate part 106 disposed on a front face of substrate 100 [0036]. At the time the invention was made, it would have been obvious to a person having ordinary skill in the art to cut substrate with laminate on the face of the substrate teaching of Manor in laser processing method of Hoekstra, because such laminate part e.g. coating on surface of substrate helps to minimize chipping and improve device yield as taught by Manor in [0034].

With regard to claim 27, Hoekstra teaches a laser processing method, wherein the substrate 4 modified region (where void 37 is located) is formed within the substrate 4 (Fig. 4) such that the substrate modified region shifts from the center position of the

object in the thickness direction toward a rear face of the substrate 4 (col. 4, lines 40-50).

With regard to claim 28, Hoekstra teaches a laser processing method further comprising the step of applying stress (col. 4, lines 45-50 by tensile forces) to the object 4 after the step of forming the starting point region (wherein void 37 is formed) for cutting, so as to cut the object 4 (col. 4, lines 45-50) along the line 45.

Hoekstra fails to teach step applying stress to the object from the laminate part side.

Manor teaches step applying stress to the object from the laminate part side 106 (Fig. 3A and 3B, wherein laser been irradiate to create stress on the laminate part side). See claim 14 discussion for combination.

With regard to claim 29, Hoekstra teaches a laser processing method wherein the substrate modified region (wherein void 37 is formed) is formed within the substrate 4 (Fig. 4) such that the modified region shifts from the center position of the object in the thickness direction toward the front face of the substrate 4 (col. 6, lines 5-15, wherein laser beam can apply to one side to other side).

With regard to claim 30, Hoekstra teaches a laser processing method further comprising the step of applying stress (col. 11 , lines 10-20 wherein stress is generated on bottom side of the substrate by a small rise in the elevations at the locations where the substrate 4) to the object 4 (Fig. 4 with respect Fig. 16) from the opposite side of the laminate part (see claim 14 discussions wherein laminate part is formed on face of the

substrate) after the step of forming the starting point region for cutting, so as to cut the object along the line 45 (Fig. 16).

With regard to claims 31-32, Hoekstra teaches a laser processing method wherein the substrate 4 is a plurality of substrates (col. 10, lines 50-55) formed while abutting (Fig. 16) the modified regions formed within the substrate 4 (Fig. 4).

Hoekstra fails to teach laminate part and the substrate and the laminate part are a plurality of substrate attached to each other while forming a gap there between.

Manor teaches laminate part and the substrate and the laminate part is a plurality of substrate attached to each other while forming a gap there between (Fig. 4C wherein laminate part 106 and substrate 100 are attached while gap 350 is formed). See above claim 19 discussions for the combination).

With regard to claims 34 and 36, Hoekstra teaches a laser processing method wherein the object comprises the substrate 4 (Fig. 4), but fails to teach a laser processing method wherein the object comprises the laminate part, the laminate part includes a first laminate part which is an oxide film disposed on the front face of the substrate and a second laminate part disposed on a front face of the first laminate part and the laminate part which is a laminated functional film.

Manor teaches a laser processing a laser processing method wherein the object comprises the laminate part (106), the laminate part includes a first laminate part which is an oxide film [0008] disposed on the front face of the substrate 100 and a second laminate part disposed on a front face of the first laminate part ([0008] wherein layer 106 is comprises various layer include passivation oxide layer) and the laminated part

which is a laminated functional film ([0008] wherein one of the various can be used as functional film). See claim 14 for combination.

With regard to claim 35, Hoekstra teaches a laser processing method wherein the object comprises the substrate 4 (Fig. 4) which is a glass substrate (col. 4, lines 25-30), but Hoekstra fails to teach the laminate part which is a glass substrate.

Manor teaches a laminate part 106 with various layer e.g. passivation oxide [0008] which equals to glass substrate). See above claim 14 discussions for the combination

With regard to claim 37, Hoekstra teaches a laser processing method further comprising the step of cutting the object 4 along the line 45 from the starting point region for cutting (Fig. 4 with respect to Fig. 16).

With regard to claims 50-51, Hoekstra teaches a laser processing method comprising the steps of irradiating a substrate 4 (Fig. 4) with laser light 34 while positioning a light converging point 35 within the substrate 4 (Fig.4), so as to from a modified region 37 only within the substrate 4, the modified region 37 including a molten processed region (col. 6, lines 1-6) forming a starting point (wherein void 37 is formed) region for cutting the substrate 4 at a predetermined distance (Fig. 4) from a laser light 34 incident face of the substrate 4; and cutting the substrate 4 and along a line 45 (Fig. 4 with respect to Fig. 16) when a fracture generated in thickness direction of the substrate 4 (col. 55-60) from the starting region (wherein void 37 is located)

reaches a rear face of the substrate 4 (col. 4, lines 35-47) wherein the substrate modified region formed within substrate 4 (Fig. 4).

Hoekstra expressly fails to teach providing a laminate part on a front face of the substrate after forming the staring point region and cutting the laminate part and fracture reaches front face of the laminate part and the laminate part modified region formed within the laminate part are separate from each and provide at least one manufactured semiconductor device.

Manor teaches cutting a substrate 100 (Fig. 3A) with a laminate part 106 disposed on a front face of substrate 100 [0036] after forming the starting point (see [0036] wherein a laser can be irradiate below coating layer to create starting point) and the laminate part modified region formed within the laminate part are separate from each other ([0036] wherein the laminate part and modified e.g. laser sport on the substrate 100 are separate from laminate part) and provide at least one manufactured semiconductor device [0007]. At the time the invention was made, it would have been obvious to a person having ordinary skill in the art to cut substrate with laminate on the face of the substrate teaching of Manor in laser processing method of Hoekstra, because such laminate part e.g. coating on surface of substrate helps to minimize chipping and improve device yield as taught by Manor in [0034].

With regard to claims 52 and 54-56, Hoekstra teaches a method of manufacturing a semiconductor device wherein the object 4 (Fig. 4) is irradiated with laser light 34 while positioning a light- converging point 35.

Hoekstra fails to teach form a laminate part modified region within the laminate part in the irradiating step, and the substrate modified region formed within the substrate and the laminate part modified region formed within the laminate part are separated from each other.

Manor teaches cutting a substrate 100 (Fig. 3A) with a laminate part 106 disposed on a front face of substrate 100 [0036] after forming the starting point (see [0036] wherein a laser can be irradiate below coating layer to create starting point) and the laminate part modified region formed within the laminate part are separate from each other ([0036] wherein the laminate part and modified e.g. laser sport on the substrate 100 are separate from laminate part). At the time the invention was made, it would have been obvious to a person having ordinary skill in the art to cut substrate with laminate on the face of the substrate teaching of Manor in laser processing method of Hoekstra, because such laminate part e.g. coating on surface of substrate helps to minimize chipping and improve device yield as taught by Manor in [0034].

10. Claims 15-17, 24-25, 42-44 and 49 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hoekstra (US 6,420,678) and in view of Manor (US 2001/0035401) and further in view of in view of Piwczyk et al. (6,376,797) of record.

With regard to claims 15, 24-25, 38, 42-44 and 49 Hoekstra teaches a laser processing method comprising the steps of: irradiating an object to be processed comprising a substrate 4 (Fig. 4) and with laser light 34 (Fig. 4) while positioning a light-converging point 35 at least within the substrate 4 under a condition with a pulse width of 1 us or less (col. 6, lines 26-30), so as to form a substrate modified region including a

crack region (col. 6, lines 5-15) within the substrate 4 the substrate modified region (wherein void 37 is formed) forming a starting point region for cutting the object inside the object at a predetermined distance from a laser light incident face of the object 4 (Fig. 4, col. 6, lines 1-15); and cutting the and the laminate part along a line 45 (Fig. 16) when a fracture generated in a thickness direction of the substrate from the starting point region for cutting reaches a front face and a rear face of the object 4 (col. 6, lines 10-15).

Hoekstra expressly fails to teach a laminate part disposed on a front face of substrate and cutting the laminate part and the laminate part having at least one semiconductor device and in order to provide at least one manufactured semiconductor device and laser light while positioning a light-converging point at least within the substrate under a condition with a peak power density of at least 1 x 10^8 (W/cm2).

Manor teaches cutting a substrate 100 (Fig. 3A) with a laminate part 106 disposed on a front face of substrate 100 [0036] and the laminate part having at least one semiconductor device ([0007] wherein semiconductor wafer 100 comprises plurality of chips on the wafer 100) and in order to provide at least one manufactured semiconductor device [0007]. At the time the invention was made, it would have been obvious to a person having ordinary skill in the art to cut substrate with laminate on the face of the substrate teaching of Manor in laser processing method of Hoekstra, because such laminate part e.g. coating on surface of substrate helps to minimize chipping and improve device yield as taught by Manor in [0034].

Piwczyk teaches a Nd:YAG laser with a peak power density of 9 x 10^9 W/cm^2 for creating micro crack (col. 4, lines 20-40). At the time the invention was made, it would have been obvious to a person having ordinary skill in the art to use a Nd:YAG laser with a peak power density of 9 x 10^9 W/cm^2 for creating micro crack teaching of Piwczyk in the laser processing method of Hoekstra because Hoekstra Nd:YAG laser (col. 6, lines 24-30) can be used for a peak power density of 9 x 10^9 W/cm^2 for creating micro crack for cutting a substrate.

With regard to claim 16, Hoekstra teaches a laser processing method comprising the steps of: irradiating an object to be processed comprising a substrate 4 (Fig. 4) and with laser light 34 (Fig. 4) while positioning a light-converging point 35 at least within the substrate 4 under a condition with a pulse width of 1 us or less (col. 6, lines 26-30), so as to form a substrate modified region including a molten processed region (col. 6, lines 1-5) only within the substrate 4 the substrate modified region (wherein void 37 is formed) forming a starting point region for cutting the object inside the object at a predetermined distance from a laser light incident face of the object 4 (Fig. 4, col. 6, lines 1-15); and cutting the and the laminate part along a line 45 (Fig. 16) when a fracture generated in a thickness direction of the substrate from the starting point region for cutting reaches a front face and a rear face of the object 4 (col. 6, lines 10-15).

Hoekstra expressly fails to teach a laminate part disposed on a front face of substrate and cutting the laminate part and the laminate part having at least one semiconductor device and in order to provide at least one manufactured semiconductor

device and laser light 34 while positioning a light-converging point at least within the substrate under a condition with a peak power density of at least 1 x 10^8 (W/cm2).

Manor teaches cutting a substrate 100 (Fig. 3A) with a laminate part 106 disposed on a front face of substrate 100 [0036] and the laminate part having at least one semiconductor device ([0007] wherein semiconductor wafer 100 comprises plurality of chips on the wafer 100) and in order to provide at least one manufactured semiconductor device [0007]. At the time the invention was made, it would have been obvious to a person having ordinary skill in the art to cut substrate with laminate on the face of the substrate teaching of Manor in laser processing method of Hoekstra, because such laminate part e.g. coating on surface of substrate helps to minimize chipping and improve device yield as taught by Manor in [0034].

Piwczyk teaches a Nd:YAG laser with a peak power density of 9 x 10^9 W/cm^2 for creating micro crack (col. 4, lines 20-40). At the time the invention was made, it would have been obvious to a person having ordinary skill in the art to use a Nd:YAG laser with a peak power density of 9 x 10^9 W/cm^2 for creating micro crack teaching of Piwczyk in the laser processing method of Hoekstra because Hoekstra Nd:YAG laser (col. 6, lines 24-30) can be used for a peak power density of 9 x 10^9 W/cm^2 for creating micro crack for cutting a substrate.

With regard to claim 17, Hoekstra teaches a laser processing method comprising the steps of: irradiating an object to be processed comprising a substrate 4 (Fig. 4) and with laser light 34 (Fig. 4) while positioning a light-converging point 35 at least within the substrate 4 under a condition with a pulse width of 1 us or less (col. 6, lines 26-30), so

as to form a substrate modified region within the substrate 4 the substrate modified region (wherein void 37 is formed) forming a starting point region for cutting the object inside the object at a predetermined distance from a laser light incident face of the object 4 (Fig. 4, col. 6, lines 1-15); and cutting the and the laminate part along a line 45 (Fig. 16) when a fracture generated in a thickness direction of the substrate from the starting point region for cutting reaches a front face and a rear face of the object 4 (col. 6, lines 10-15).

Hoekstra expressly fails to teach a laminate part disposed on a front face of substrate and cutting the laminate part and the laminate part having at least one semiconductor device and in order to provide at least one manufactured semiconductor device and laser light 34 while positioning a light-converging point at least within the substrate under a condition with a peak power density of at least 1 x 10^8 (W/cm2).

Manor teaches cutting a substrate 100 (Fig. 3A) with a laminate part 106 disposed on a front face of substrate 100 [0036]. At the time the invention was made, it would have been obvious to a person having ordinary skill in the art to cut substrate with laminate on the face of the substrate teaching of Manor in laser processing method of Hoekstra, because such laminate part e.g. coating on surface of substrate helps to minimize chipping and improve device yield as taught by Manor in [0034].

Piwczyk teaches a Nd:YAG laser with a peak power density of 9 x 10^9 W/cm^2 for creating micro crack (col. 4, lines 20-40). At the time the invention was made, it would have been obvious to a person having ordinary skill in the art to use a Nd:YAG laser with a peak power density of 9 x 10^9 W/cm^2 for creating micro crack teaching of Piwczyk

in the laser processing method of Hoekstra because Hoekstra Nd:YAG laser (col. 6, lines 24-30) can be used for a peak power density of 9×10^9 W/cm^2 for creating micro crack for cutting a substrate.

The recitations of "so as to form a substrate modified region including a refractive index change region which is a region with a changed refractive index" is only a statement of the inherent properties of the instant process of Nd:YAG laser pulse. The process recited in "laser processing e.g. ND: YAG" is substantially identical (instant application laser process e.g. Nd:YAG laser see specification page 26) to that of the claims, claimed properties or functions are presumed to be inherent. Or where the claimed and prior art products are identical or substantially identical in structure or composition, or are produced by identical or substantially identical processes, a *prima facie* case of either anticipation or obviousness has been established. *In re Best*, 195 USPQ 430, 433 (CCPA 1977) and MPEP 2112.02.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ELIAS ULLAH whose telephone number is (571)272-1415. The examiner can normally be reached on weekdays, between 8AM-5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thao Le can be reached on (571) 272-1708. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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/Elias Ullah/
Examiner, Art Unit 2892

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